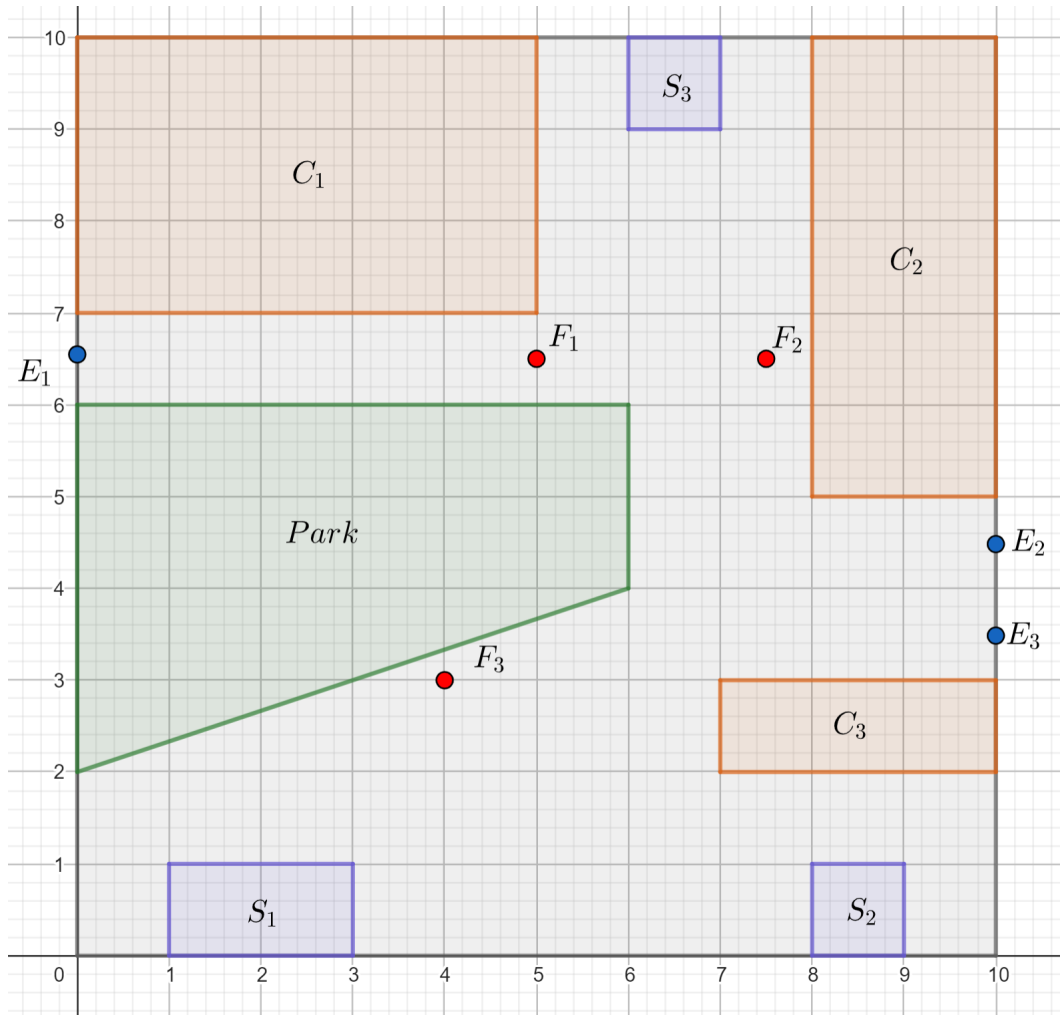


## IMMC Selection

The following diagram shows an approximate map of the site of a music festival. Each unit represents approximately 100 metres. The coordinates of the points may be rounded to 1 decimal point.



The regions  $C_i$  represent camping sites. You may assume that the number of people using a given camping site is proportional to its area. The regions  $S_i$  represent stages where concerts will take place.  $S_1$  represents the main stage. The main stage attracts  $k$  times the number of spectators as each of the other two stages, where  $k > 1$ . Points  $E_i$  represent entrances to the festival area. Points  $F_i$  represent the food and drink vendor sites.  $F_3$  represents the main food and drink vendor site. The main vendor site may serve  $m$  times the number of clients as the regular vendor sites  $F_1$  and  $F_2$ , where  $m > 1$ .

Your goal, as the manager of the food and drink vendors at the festival, is to choose two more sites for the regular vendors. The sites may not be located at the park. Your solution should include the coordinates of the two additional sites together with the justification of why these were chosen. Your solution paper should not exceed 5 pages excluding the appendix.